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<p>(21) International Application Number: PCT/EP97/04923</p> <p>(22) International Filing Date: 4 September 1997 (04.09.97)</p> <p>(30) Priority Data: 96202466.7 4 September 1996 (04.09.96) EP (34) Countries for which the regional or international application was filed: NL et al. 97200831.2 19 March 1997 (19.03.97) EP (34) Countries for which the regional or international application was filed: NL et al.</p> <p>(71) Applicant (for all designated States except US): MOGEN INTERNATIONAL N.V. [NL/NL]; Einsteinweg 97, NL-2333 CB Leiden (NL).</p> <p>(72) Inventors; and (75) Inventors/Applicants (for US only): STUIVER, Maarten, Hendrik [NL/NL]; Groenhoevelaan 71, NL-2343 BR Oegstgeest (NL). CUSTERS, Jérôme, Hubertus, Henricus, Victor [NL/NL]; Nieuwstraat 25D, NL-2312 KA Leiden (NL). SELA-BUURLAGE, Marianne, Beatrix [NL/IL]; Kefar, 108 Bilu (IL). MELCHERS, Leo, Sjoerd [NL/NL]; Wilhelmina Bladergroenweg 45, NL-2331 BZ Leiden (NL). VAN DEVENTER-TROOST, Johanna, Pieternella, Els [NL/NL]; Justus van Schoonhovenstraat 49, NL-2613</p>	<p>NX Delft (NL). LAGEWEG, Wessel [NL/NL]; Spect 33, NL-1141 BX Monnickendam (NL). PONSTEIN, Anne, Silene [NL/NL]; Meerforel 5, NL-2318 MR Leiden (NL).</p> <p>(74) Agent: VAN WEZENBEEK, Bart; Mogen International N.V., Einsteinweg 97, NL-2333 CB Leiden (NL).</p> <p>(81) Designated States: AL, AU, BA, BB, BG, BR, CA, CN, CU, CZ, EE, GE, HU, IL, IS, JP, KP, KR, LC, LK, LR, LT, LV, MD, MG, MK, MN, MX, NO, NZ, PL, RO, SD, SG, SI, SK, SL, TR, TT, UA, UG, US, UZ, VN, YU, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> <p>Published <i>Without international search report and to be republished upon receipt of that report.</i></p>	

(54) Title: ANTIFUNGAL PROTEINS, DNA CODING THEREFORE, AND HOSTS INCORPORATING SAME

(57) Abstract

The present invention provides an isolated protein obtainable from a plant source which has antifungal activity, specifically anti-*Phytophthora* activity and/or anti-*Pythium* activity and a molecular weight of about 55-65 kDa as judged by SDS PAGE-electrophoresis, an isolated DNA sequence comprising an open reading frame capable of encoding a protein according to the invention, preferably characterised in that it comprises an open reading frame which is capable of encoding a protein depicted in SEQ ID NO. 16, SEQ ID NO. 57, SEQ ID NO. 70, SEQ ID NO. 72 or SEQ ID NO. 74 or muteins thereof, and DNA capable of hybridising therewith under stringent conditions. The invention further comprises plants incorporating chimeric DNA capable of encoding a protein according to the invention, and wherein the protein is expressed. Also shown is the carbohydrate and preferably hexose oxidating activity of said protein. Also methods are provided for combating fungi, especially *Phytophthora* and *Pythium* species, using a protein or a host cell capable of producing the protein.

FR / fungal resistance / hexose oxidase / M59 / W66 / Phytophthora / Pythium

